

## **5.5 WATER RESOURCES**

### **5.5.1 Affected Environment**

The Magnolia Power Project (MPP) is located in the City of Burbank (COB), Los Angeles County, California. The project will be constructed at an existing power plant site operated by the COB. The MPP site is located at 164 West Magnolia Boulevard, which is situated approximately one-eighth mile west of the I-5 freeway. The site is bordered by industrial properties on all sides. The COB site is approximately 23 acres in size. The project site will require approximately 3.0 acres.

#### **5.5.1.1 Magnolia Power Project Energy Facility**

**5.5.1.1.1 Water Supply.** Water will be supplied to the MPP via the COB potable water distribution system and the COB Public Works Department Reclamation Plant. The reclaimed water will be used as a makeup water source to the facility's evaporative cooling tower makeup. Potable water from the city will be used during operations as cooling water, service water and as supply to the cycle makeup treatment system at the facility. Water for use in the Fire Protection System will also be provided by the COB from the city water system.

#### **5.5.1.1.2 Hydrology.**

**100-Year Flood Plain.** The Los Angeles River is located approximately one mile south of the project site. The site is in Zone C, an area determined to be outside the 500-year floodplain. Because the site is outside the 500-year flood plain, the hazard for flooding is negligible.

**Surface Waters.** The plant site is fully developed and paved. Storm runoff from this area is currently collected through a system of drop inlets and storm drainpipes to a 36-inch storm drain line that discharges to the Burbank Western Channel.

#### **5.5.1.2 Transmission Lines**

The facility has an existing connection to the COB transmission and distribution system through the Olive Switchyard.

#### **5.5.1.3 Pipelines**

**5.5.1.3.1 Fuel Gas Supply Line.** The facility has an existing SoCalGas pipeline to the site.

**5.5.1.3.2 Water Supply Line.** The facility has existing potable water and reclaimed water pipelines.

**5.5.1.3.3 Wastewater Discharge Line.**

Wastewater from the COB site is discharged to the Burbank Western Channel located at the northern boundary of the facility. The Burbank Western Channel is a tributary to the Los Angeles River. This discharge is permitted by the Regional Water Quality Control Board – Los Angeles (RWQCB) under National Pollutant Discharge Elimination System (NPDES) Permit No. CA0055531. Approximately 4.33 million gallons per day (MGD) of wastewater is discharged to the Burbank Western Wash consisting of:

- Surplus effluent from the Burbank Water Reclamation Plant
- Power plant cooling tower blowdown
- Reverse osmosis demineralizer and water softener effluent
- Storm water
- Boiler drainage.

The characteristics of the effluent in 1997 were:

Constituent	Unit	Annual Average	Maximum Monthly Average
Temperature	° F	71	---
BOD5 20° C	Mg/L	8.0	---
Suspended solids	Mg/L	3.2	---
Settleable solids	ml/L	<0.1	<0.1
Total dissolved solids	Mg/L	---	583

Sanitary wastes are discharged to the sanitary sewers operated by the COB.

**5.5.1.4 Access Road**

Primary access to the facility is provided via an entrance on Lake Street.

**5.5.2 Environmental Consequences**

**5.5.2.1 Magnolia Power Project**

The MPP is a proposed nominal 250 MW natural gas fired electrical generating facility to be located at the site of the existing COB power plant. The entire project, including ancillary facilities (fuel supply, water supply, wastewater discharge and electrical transmission), will

be completely contained within the boundaries of the existing site. This site has operated as an electrical generating facility at this location since 1941.

The proposed project will be constructed on approximately 3.0 acres of the existing 23-acre COB site, located at 164 Magnolia Boulevard in Burbank, California. A 2.4-acre offsite laydown area will be located two miles to the northwest of the MPP site. The project includes a power island, switchyard upgrades to the existing Olive switchyard control and administrative buildings, a wet mechanical-draft cooling tower, storage tanks, natural gas compressors, and other ancillary facilities. The project also includes onsite pipelines for natural gas supply, water supply, wastewater discharge, site access, and parking. No offsite pipelines are involved.

The Project will include the following systems:

- **Boiler Feedwater System.** The condensate pumps (2 x 100%) will transfer feedwater from the condenser hot well to the low pressure (LP) drum. The boiler feedwater pump (2 x 100%) will provide water from the LP drum to the high pressure (HP) and LP sections of the HRSG. Makeup to this system will be produced from potable water onsite with mobile demineralization equipment.
- **Main Condenser.** The main condenser condenses steam and cools and deaerates the condensate to a level suitable for introduction into the HRSG. It will be a single shell, two-pass, nondivided water box condenser, with 316 stainless steel (SS) tubes. The tube surface will be designed with extra capacity for fouling, and to permit temporary plugging of leaking tubes so that complete repair can be accomplished during scheduled outages. The condenser air removal system will consist of steam powered air eductors and/or mechanical vacuum pumps for both hogging and holding of condenser vacuum. Redundant air removal equipment will be provided.
- **Cooling Tower and Circulating Water System.** The cooling tower cools the circulating water and makes it suitable for cooling the main condenser and the auxiliary equipment. Three (33% capacity) circulating water pumps will supply cooling water to the main condenser. The cooling system will be designed for two of the cooling tower cells or one of the circulating water pumps to be out of service for maintenance without significantly affecting electrical output. The STG and CTG can be operated at reduced loads if several of the cooling tower cells are out of service. There will be a total of six cells in the cooling tower structure.
- **Closed Cooling Water System.** This system will provide water for cooling balance-of-plant components such as the air compressors and bearing coolers. Heat is rejected in the

cooling tower. Redundant closed cooling water pumps and heat exchangers will be provided.

- **STG Cycle Makeup and Storage System.** This system transfers water from a demineralizer to storage tanks to the condenser. The storage capacity in the demineralized water storage tank will provide feedwater makeup if the demineralized water supply is curtailed for a short time.

**Demolition and Construction.** Construction of the plant from site preparation and grading to commercial operation is anticipated to commence early in 2002 and proceed for approximately 23 months. Areas within the site boundary will be used as off-load and staging areas. Additional lay-down space may be required offsite to temporarily store construction materials and plant equipment prior to installation. Additional offsite lay-down space is being studied. These sites are typically existing asphalt paved storage or parking areas. Temporary offsite storage for large components may be procured near the closest rail station or transportation hub.

Materials and equipment staging areas are needed for construction. These areas serve as base stations where employees report at the start and end of each day's activities. Staging areas are used for other activities and functions including field office locations, lay-down areas, storage of materials, storage of equipment and vehicles, the mechanic's garage, and security of the above items. These staging areas will be located on the project site during the detailed design phase of the project.

Construction water will be provided by the COB from local supply and will be provided to the construction area.

Drinking water will be distributed daily. Average daily use of construction water is expected to be about 5,000 gallons. During hydrotest, water usage is estimated at 20,000 gpd. Used hydrotest water will be discharged into the storm drainage system. Portable toilets will be provided throughout the site.

**Construction Site Runoff.** Approximately ten acres of land will be disturbed in the construction of the MPP. The quality of the storm water runoff will be managed through the development and implementation of Best Management Practices (BMPs) specified in a Storm Water Pollution Prevention Plan (SWPPP) and compliance with storm water quality management requirements established by the COB.

**Heat Rejection System.** Power cycle heat rejection will consist of a two-pass deaerating surface condenser, a circulating water system, a closed loop auxiliary water system, and a conventional evaporative cooling tower array. The condenser and its auxiliaries will be

designed to accept STG bypass flow during unit startup. The circulating water system will provide cooling water for condenser heat rejection as well as for auxiliary cooling water. The cooling water tower will be counter-flow, mechanical draft, plastic fill design.

Dry, air cooled condensers were considered but they are much more expensive and cause a meaningful loss in plant efficiency. As long as the reclaimed water is available, the wet cooling tower is the best alternative.

**5.5.2.1.1 Water Supply and Treatment.** Water supply requirements for the MPP include reclaimed and potable water from the COB treatment plants. Water will be supplied to the MPP via the COB potable water distribution system and the PWD Reclamation Plant from the basin. The expected annual average water requirements for the project are 6,300 acre-feet of reclaim water and 115 acre-feet of potable water.

Water will be used for domestic purposes, fire water, and cycle makeup. The MPP will utilize two different sources of water; a mixture of domestic and reclaim water for cooling tower makeup, and only the domestic supply for HRSG feedwater makeup. Presently the discharge limitations severely limit the amount of reclaim water that can be used. The same limits force the use of low cycles of concentration in the cooling tower. The COB is pursuing alterations to the discharge permit limits and alterations to the reclaim water treatment processes. If the discharge limitations are relaxed the design will be altered to use more cycles of concentration and therefore, less total water and a larger portion of reclaim water will be included in the design. The COB is also pursuing a retrofit to the reclaim water plant that may improve the reclaim water quality significantly. When this work is completed the reclaim water use can be revisited. The discharge quality shown in Table 5.5-1 shows the effect of reducing the nitrogen and heavy metals at the reclaim water plant.

**COB Reclaim Water Treatment Plant Effluent.** The project will utilize reclaimed water purchased from the COB and supplied by the PWD under long-term contract. Using mostly water from the domestic supply approximately 4,500 gpm of cooling tower makeup water will be required to reject heat from the steam condenser. COB will serve the project from the reclaimed water system onsite. The COB operates a reclaim water treatment plant that produces water of sufficiently clean quality to discharge into the Burbank Western Wash, a tributary to the Los Angeles River. The treatment plant has a capacity of 27 acre-ft per day, but currently averages about 19 acre-ft per day. The reclaimed water will be used as a makeup water source to the facility's evaporative cooling tower makeup. The average daily water consumption for cooling water is expected to be 17.1 acre-ft per day. The backup source of cooling water is the potable water supply on the site.

**TABLE 5.5-1**  
**PROCESS WASTE CHARACTERIZATION**

	Units	Cooling Tower Blowdown	Oil/ Water Separator Effluent	Uncontaminated Precipitation	Combined Wastewater	Current Discharge Limits
Flow, kgpd		4,353	11	25	4,378	--
Ca	Mg/l	91	61	0	91	--
Mg	Mg/l	23	14	0	23	--
Na	Mg/l	80	44	0	79	--
K	Mg/l	7	3	0	7	--
M. Alk as CaCO <sub>3</sub>	Mg/l	248	215	10	247	--
Cl	Mg/l	60	34	0	60	190
SO <sub>4</sub>	Mg/l	139	61	0	138	300
NO <sub>3</sub>	Mg/l	1	17	0	1	--
Cl <sub>2</sub>	Mg/l	0.2	--	0	0.2	0.2
SiO <sub>2</sub>	Mg/l	33	21	0	33	--
TSS	Mg/l	15	0	0	15	15
TDS	Mg/l	762	0	10	946	950
Inhibitor	Mg/l	42	--	0	41	--
Fe	Mg/l	0.068	0.051	0	0.067	0.300
Cu	Mg/l	0.009	0.007	0	0.009	0.011
Al as Al <sub>2</sub> O <sub>3</sub>	Mg/l	0.066	0.050	0	0.066	1
PO <sub>4</sub>	Mg/l	0.17	0.10	0	0.17	5
pH	S.U.	6 to 9	8	6.5	6 to 9	6.5 to 9.0
Conductivity	µS/cm	950	600	10	946	958
CTG BD below = 1.5* PWD Monthly Monitoring Report Value, Discharge 002, except < values are shown						
Turbidity	NTU	--	--	--	<3	2
Temperature	°F	65 to 82	--	--	100	100
BOD <sub>5</sub>	Mg/l	12	--	--	12	20
O/G	Mg/l	<2	--	--	<2	10
Settlable Solids, SS	Mg/l	--	--	--	--	0.1
CN	Mg/l	<0.02	--	--	<0.02	5.2
S	Mg/l	--	--	--	--	--
B	Mg/l	1.5	--	--	1.5	1.5
F	Mg/l	0.8	--	--	0.7	2.0
Det, MBAS	Mg/l	0.3	--	--	0.3	0.5
NO <sub>2</sub> -N	Mg/l	0.9	--	--	0.9	1
NO <sub>2</sub> -N+NO <sub>3</sub> -N	Mg/l	6	--	--	6	8
NH <sub>3</sub>	Mg/l	27	--	--	27	10
Organic-N	Mg/l	<2.5	--	--	<2.5	--

**TABLE 5.5-1**  
**(CONTINUED)**

	<b>Units</b>	<b>Cooling Tower Blowdown</b>	<b>Oil/ Water Separator Effluent</b>	<b>Uncontaminated Precipitation</b>	<b>Combined Wastewater</b>	<b>Current Discharge Limits</b>
Ba	Mg/l	0.108	0.081	--	0.108	1.0
Mn	Mg/l	0.021	0.016	--	0.021	0.050
As	Mg/l	0.003	--	--	0.003	0.050
Cd	Mg/l	<0.010	--	--	<0.010	0.001
Cr	Mg/l	0.013	0.010	--	0.013	0.2
Pb	Mg/l	<0.050	--	--	<0.050	0.0025
Hg	Mg/l	<0.0002	--	--	<0.0002	0.000012
Ni	Mg/l	0.000	0.000	--	0.000	0.001
Se	Mg/l	<0.002	--	--	<0.002	0.005
Ag	Mg/l	<0.050	--	--	<0.050	0.0034
Zn	Mg/l	0.277	0.208	--	0.276	1
Co	Mg/l	<0.050	--	--	<0.050	--
PCB	Mg/l	<0.0002	--	--	<0.0002	None
Endrin	Mg/l	<0.000005	--	--	<0.000005	0.0000023
Lindane	Mg/l	<0.000005	--	--	<0.000005	0.0001
1,4-dichlorobenzene	Mg/l	<0.003	--	--	<0.003	0.005
Bis (2-ethylhexyl)- phthalate	Mg/l	0.086	--	--	0.085	0.004
1,2-dichloroethane	Mg/l	<0.0005	--	--	<0.0005	0.0005
Chloroform	Mg/l	0.007	--	--	0.007	0.100
Ethylbenzene	Mg/l	<0.0005	--	--	<0.0005	0.700
Toluene	Mg/l	<0.0005	--	--	<0.0005	0.150
Tetrachloroethylene	Mg/l	<0.0005	--	--	<0.0005	0.005
Methylene chloride	Mg/l	<0.003	--	--	<0.003	0.005
Bromoform	Mg/l	<0.001	--	--	<0.001	0.100
Bromodichlore- methane	Mg/l	<0.0005	--	--	<0.0005	0.100
Dichlorobromo- methane	Mg/l	<0.0005	--	--	<0.0005	0.100
2,4-D	Mg/l	<0.0004	--	--	<0.0004	0.070
2,4,5-TP Silvex	Mg/l	<0.00002	--	--	<0.00002	0.010
Nitrobenzene	Mg/l	--	--	--	--	--
2,4-chlorophenol	Mg/l	--	--	--	--	--
Phenol	Mg/l	0.030	--	--	0.030	--
Methoxychlor	Mg/l	<0.000005	--	--	<0.000005	--

**TABLE 5.5-1**  
**(CONTINUED)**

	Units	Cooling Tower Blowdown	Oil/ Water Separator Effluent	Uncontaminated Precipitation	Combined Wastewater	Current Discharge Limits
MTBE	Mg/l	0.0015	--	--	0.0015	--
DDT	Mg/l	<0.000005	--	--	<0.000005	--
PAH	Mg/l	<0.004	--	--	<0.004	--
Remaining Priority Pollutants	Mg/l	--	--	--	PQL	None Detected

**COB Potable Water.** Potable water will be used for human consumption, sanitary facilities, and as the feed supply to the trailers to be installed at the MPP site. These trailers produce demineralized water needed in the combustion turbine and as makeup to the boiler feedwater cycle. Potable water is available onsite through a six-inch water main that crosses the proposed site for the new unit. Total availability to the site has not been determined by the COB Public Works Department, but a hydrant test performed near the intersection of Varney and Magnolia was reported to provide at least 2,500 gpm with a residual pressure of over 100 psi. This is sufficient water for both the boiler feedwater and the cooling water makeup. Water for use in the Fire Protection System will also be provided by the COB from the city water system.

HRSG feedwater and additional potable water for the facility will be purchased from the COB. This water consumption is estimated at 280 gpd. Demineralization of potable water will be performed onsite. The existing onsite city water supply pipeline is capable of handling the project's potable water demand.

**Alternative Water Supply Sources.** Potable water supplied by the COB will be used when necessary. Given the physical constraints on potable water supply in Southern California and the political nature of the water supply issue, reclaimed water represents the best option for cooling tower makeup only if some of the discharge limits for reused reclaim water are relaxed. The relatively large quantities of cooling tower makeup water (4,500 gpm) can be supplied by the Reclaimed Water Plant. This water would otherwise be discharged to the ocean at considerable expense.

**Water Supply Requirements.** The typical daily, maximum, and annual water uses for the MPP are shown in Tables 5.5-2 and 5.5-2A. Figure 3.4-5A shows the expected water balance and usage for an average day. Figure 3.4-5B shows the water balance and usage for a maximum condition. The water supply requirements include domestic uses, fire water, cycle

makeup and miscellaneous plant uses, cooling tower makeup, and CTG inlet air evaporative cooler. Cooling tower duty includes auxiliary cooling loads.

**TABLE 5.5-2****DAILY WATER SUPPLY REQUIREMENTS**

<b>Water Supply</b>	<b>Average Usage<sup>1</sup></b>	<b>Maximum Usage</b>
<b>Reclaimed Water</b>		
Cooling Tower Makeup	941,000 gal/day <sup>2</sup>	3,801,000 gal/day <sup>2</sup>
Total Reclaim Water	941,000 gal/day	3,801,000 gal/day
<b>Potable Water</b>		
Cooling Tower Makeup	5,619,000 gal/day <sup>2</sup>	5,663,000 gal/day <sup>2</sup>
Cycle Makeup Treatment System	380,000 gal/day	380,000 gal/day
Plant and Equipment Drains	11,000 gal/day	11,000 gal/day
Chemical Drains/Flushing Water	0 gal/day	2,000 gal/day
Potable and Sanitary Uses	2,000 gal/day	2,000 gal/day
Total Potable Water	5,999,000 gal/day	6,014,000 gal/day

<sup>1</sup> Daily use based on 95° F average annual ambient temperature and full load operation.

<sup>2</sup> Does not include wastewater streams recycled to tower as supplemental makeup. Refer to water mass balance (Figure 3.4-5) for amounts of wastewater to be recycled to the cooling tower.

**TABLE 5.5-2A****ANNUAL WATER CONSUMPTION**

<b>Water Supply</b>	<b>Average Annual Usage<sup>1</sup></b>	<b>Maximum Usage<sup>1</sup></b>
Reclaimed Water	1,200 acre-ft/year	4,400 acre-ft/year
Potable Water	6,900 acre-ft/year	6,900 acre-ft/year
Discharge to Burbank Western Channel	5,100 acre-ft/year	8,300 acre-ft/year

<sup>1</sup>Based on 95° F annual average temperature and full load operation.

Potable water supplied by the COB will be used only when necessary. Given the physical constraints on the potable water supply in Southern California and the political nature of the issue, reclaimed water represents the best option for cooling tower makeup. The relatively large quantities of cooling tower makeup water (6,619,000 gpd) can be supplied by the Reclaimed Water Plant, and doing so provides a use for this water that would otherwise be discharged to the ocean at considerable expense.

**Water Quality and Balance.** The COB potable water and the reclaimed water supply have an average water quality as listed in Table 5.5-3. Water use is shown in the water balance diagrams (Figure 3.4-5A and Figure 3.4-5B).

**Water Pretreatment.** Reclaimed water supplied to the facility for cooling tower makeup will have the capability to be hypochlorinated prior to direct use as cooling tower makeup. Potable water will be supplied through an interconnection with the COB's existing distribution system and will not require pretreatment.

**Cooling Tower Makeup Water.** There will be one cooling tower for the MPP. The tower will provide heat rejection for the facility's steam turbine cycle. The majority of the makeup water will be reclaimed water and is expected to have a total dissolved solids (TDS) content of approximately 600 milligrams per liter as fed to the cooling tower. Potable water will be available for use in the cooling tower only on an emergency cooling basis, and as necessary to meet discharge limitations. The circulating water will be continuously treated and controlled in order to achieve not more than 1.5 cycles of concentration. A summary of the cooling tower operation is contained in Table 5.5-4.

**Circulating Water Treatment.** A circulating water chemical feed system will supply water conditioning chemicals to the circulating water system to minimize corrosion and to control biofouling. To prevent ground contamination, all circulating water chemicals will be stored in double contained storage tanks.

Sulfuric acid will be fed into the circulating water system for alkalinity reduction and pH adjustment in order to control the scaling tendency of the circulating water. The acid feed equipment will consist of a bulk sulfuric acid storage tank and two full-capacity, piston-diaphragm sulfuric acid metering pumps.

To minimize biofouling in the circulating water system, sodium hypochlorite will be shock fed into the system as a biocide. The hypochlorite feed equipment will consist of a bulk storage tank and two full-capacity, piston-diaphragm inhibitor metering pumps. Residual chlorine in the blowdown water will be minimized by the design of the chlorination/dechlorination system and its operation. Proprietary biocide will be available onsite for direct feed into the circulating water system to control algae, if necessary. Dechlorination will be used to ensure that the Discharge 001 to the Burbank Western Channel is compliant with the regulations.

At 1.5 cycles of concentration, it is estimated that the circulating water will have a total dissolved solids content of approximately 750 milligrams per liter.

**TABLE 5.5-3**  
**EXPECTED RECLAIMED AND POTABLE WATER QUALITY**  
**(mg/L, EXCEPT AS NOTED)**

Constituent	Design Reclaimed Water	Design City Water
Calcium	57	61
Magnesium	18	15
Sodium	114	44
Potassium	15	3
M-Alkalinity, as CaCO <sub>3</sub>	247	184
Chloride	82	34
Sulfate	96	62
Fluoride	<0.1	<0.1
Nitrate	5	21
Silica	23	22
TSS	NR <sup>1</sup>	--
Turbidity	1	0.4 (NTU)
TDS	719	476
BOD <sub>5</sub>	8	NR <sup>1</sup>
Ammonia	5	NR <sup>1</sup>
COD	NR <sup>1</sup>	NR <sup>1</sup>
Boron	1	NR <sup>1</sup>
Phosphate	3	<0.1
pH, S.U.	7.3	7.6
Cyanide	<0.02	NR <sup>1</sup>
Cadmium	<0.010	NR <sup>1</sup>
Chromium	<0.010	<0.010
Copper	0.001	0.007
Lead	<0.050	NR <sup>1</sup>
Mercury	<0.0002	NR <sup>1</sup>
Nickel	<0.001	NR <sup>1</sup>
Silver	<0.050	NR <sup>1</sup>
Zinc	0.001	0.21

<sup>1</sup> NR – Not reported.

**TABLE 5.5-4**  
**COOLING TOWER OPERATING CHARACTERISTICS**

Parameter	Cooling Tower <sup>1</sup> Average	Evaporative Coolers
Circulating Water, gpm	103,000	1,650
Number of Cells	6	--
Makeup, gpm	4,600	150
Blowdown, gpm	3,100	100
Drift, gpm	2	--
Evaporation plus Drift, gpm	1,500	100

<sup>1</sup> All numbers are approximate and are for 95° F day conditions and full load operation.

**Cycle Makeup Water Treatment.** Prior to use as makeup to the HRSG/STG steam cycle, additional treatment of city water by demineralization will be required. City water will be directed to the cycle makeup treatment system to produce high quality demineralized water for makeup to the steam cycle and for miscellaneous plant uses. This system will include a leased mobile demineralizer utilizing offsite regeneration facilities. Demineralized water produced will be directed to a demineralized water storage tank for storage and use.

**Cycle Chemical Feed System.** The Cycle Chemical Feed System will supply water conditioning chemicals to the HRSG/STG steam cycle to minimize corrosion. The system will feed an oxygen scavenger and a neutralizing amine to the feedwater and condensate, respectively, for dissolved oxygen control and cycle pH control. The design will provide for automatic feed of oxygen scavenger and amine in proportion to feedwater and condensate flow rates, respectively. This method of treatment is referred to as all volatile treatment and is often employed for once-through design steam generators. The potential use of full-flow condensate polishing to assure satisfactory feedwater over a range of operating conditions will be evaluated during detail design. A condensate polishing system would include multiple service vessels containing cation/anion exchange resins, external resin separation and regeneration system vessels, acid and caustic regeneration equipment, chemical waste sump and pumps, and a PLC system. Condensate polishing system regeneration wastes would be directed to a neutralization tank for pH adjustment prior to disposal.

### **State Water Policy and Regulation**

**Los Angeles Region Basin Plan.** The Los Angeles RWQCB has jurisdiction over water quality within the region of the proposed project. The RWQCB developed the *Water Quality Control Plan (Basin Plan) for the Los Angeles Region* (RWQCB, 1994), which guides

conservation and enhancement of water resources and establishes beneficial uses for inland surface waters, tidal prisms, harbors, and groundwater basins within the region. The Basin Plan was updated by the RWQCB in 1995. Beneficial uses are designated so that water quality objectives can be established, and programs that enhance or maintain water quality can be implemented. In addition, the Basin Plan incorporates by reference all applicable State and RWQCB water quality control plans and policies and other pertinent water quality policies and regulations.

### **State Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling**

In 1975 the California Water Resources Control Board (CWRCB) issued The Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (Policy CWRCB, 1975). The Policy contains the following principles that are applicable to this Project:

- An order of priority of water resources for power plant cooling was established subject to site specific parameters such as environment, technical, economic and feasibility considerations. The order is:
  1. Wastewater being discharged to the ocean
  2. Ocean
  3. Brackish water from natural sources or irrigation return flows
  4. Inland waste waters of low TDS
  5. Other inland waters.
- The use of inland waters for power plant cooling requires analysis of the impact on Delta outflow and Delta water quality objectives.
- The discharge of blowdown water from cooling towers must not cause a violation of water quality objectives or waste discharge requirements established by Regional Boards.

### **Senate Bill 1196 Allowances**

SB 1196 §2(e)(3) states “Any [discharge limitation] requirement imposed pursuant to §13262 or 13377 shall be adjusted to reflect a credit for waste present in the reclaimed water before reuse. The credit shall be limited to the difference between that amount of waste present in the non-reclaimed water supply otherwise available to the industry and the amount of waste present in the reclaimed water.”

Under SB 1196, the COB Public Service Department (PSD) can discharge higher concentrations of chloride, sulfate and TDS than would otherwise be allowed under NPDES

because significant amounts of these contaminants are already present in the reclaimed water received from the PWD.

In 1994, Burbank Water and Power (BWP) evaluated the difference between the quality of the reclaimed water received by BWP from the PWD and the quality of the potable water used by the PSD for the 1994 calendar year. In August 1994 BWP formally notified the RWQCB of its intent to apply SB 1196 credits to discharge 001. BWP calculated NPDES permit limit credits available through SB 1196, which demonstrated compliance at discharge 001. Since then, BWP has focused periodic testing and record keeping on the three constituents in its effluent: chloride, sulfate, and TDS, which are used as indicators of effluent water quality. The effluent monitoring program will continue as before after the MPP facilities are brought into service.

### **Area-wide Municipal Storm Water NPDES Permit**

In accordance with the federal Clean Water Act (CWA), an NPDES permit is required for certain municipal separate storm sewer discharges to surface waters. The MPP is within the area covered by NPDES Permit No. CAS614001 issued by the LARWQCB on July 15, 1996. The permit is a joint permit, with the County of Los Angeles as the “Principal Permittee” and 85 incorporated cities within the County of Los Angeles, including the COB, as “Permittees.” The objective of the permit and the associated storm water management program is to effectively prohibit non-storm water discharges, and to reduce pollutants in urban storm water discharges to the “maximum extent practicable,” in order to attain water quality objectives and to protect the beneficial uses of receiving waters. This area-wide municipal storm water permit expires July 30, 2001, and a renewal process was initiated in February 2001.

As part of the municipal storm water program, the LARWQCB adopted the Standard Urban Storm Water Mitigation Plan (SUSMP) to address storm water pollution from new development and redevelopment projects. The SUSMP is a model guidance document for use by Permittees in the review and approval of project plans to ensure that project proponents have adequately incorporated post-construction BMPs to manage the quality of storm water and urban runoff. Generally, three types of BMPs are described in the SUSMP, including source control, structural, and treatment control.<sup>1</sup> The SUSMP also specifies numeric standards for the design of structural and treatment control BMPs for infiltration and/or treatment of storm water runoff.

<sup>1</sup> As defined in the SUSMP: “Source control BMP” means any schedules of activities, prohibition of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution. “Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g., canopy, structural enclosure). The category may include both source control and treatment BMPs. “Treatment control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological or chemical process.

#### **5.5.2.1.2 Hydrology and Water Quality.**

##### **100-Year Flood Plain.**

**Surface Water.** Site drainage within the new power block area will be similar to the existing system. Storm runoff will be collected and routed to the 36-inch storm drain and then to the Burbank Western Channel. Figure 3.4-1 (Site Grading and Drainage Plan) shows the proposed drainage system and conceptual grading plan. Storm water flows from areas with potential for oil contamination will be directed to an oil/water separator before being discharged to the sanitary sewer system.

**Groundwater.** Groundwater at the facility is found at a depth of 100 feet. This groundwater is contaminated by the Lockheed Superfund site and is treated for use at the existing facility.

**5.5.2.1.3 Wastewater Treatment and Disposal.** The primary component of the wastewater will consist of blowdown from the cooling towers. Other wastewater will also be discharged from the site. Industrial wastewater discharge is to the Burbank Western Channel Discharge 001 permitted by NPDES Permit CA0055531. Sanitary wastes must be sent to the sanitary waste line already onsite.

**Sanitary Wastewater.** The sanitary sewer system will connect the new facilities to the existing sanitary sewer that currently runs north/south through the site. The sewage will be treated in an existing reclaim treatment plant.

**Process Wastewater.** The combined process wastewater discharge from the plant will consist of cooling tower blowdown. Refer to Tables 5.5-4 and 5.5-5. Figures 3.4-5A and 3.4-5B also illustrate the sanitary and oily wastewater flow paths. Relatively higher quality wastewater such as HRSG blowdown, plant drains without oil contamination, and CTG inlet air evaporative cooler blowdown will be recycled and reused as supplemental makeup to the cooling tower.

The discharge of process wastewater from the power plant site will be to the Burbank Western Channel, which eventually flows into the Los Angeles River. The LARWQCB, by October 98-052, issued NPDES Permit CA0055531 to cover both the PWD Water Reclamation Plant and the steam power plant. The existing permit has designated Discharge 001 for the power plant and Discharge 002 for the excess reclaimed water not used by the power plant. The LARWQCB regulates the discharge by determining the maximum allowable levels of various constituents and the fees associated with discharge for both flow and the constituents discharged.

The COB Municipal Code also contains restrictions on the constituents that can be discharged to the reclaim water plant, storm drain system, or waters of the state.

One further set of revised discharge limits, LARWQCB Order 98-072, is in effect until October 1, 2002, that if complied with, will allow delay of compliance with the discharge limits in Order 98-052 until October 3, 2006.

Concentration limits placed on the water quality of Discharges 001 and 002 are shown together (Table 5.5-5) with the effluent quality for the reclaim water plant taken from the Monitoring Reports for August and September 2000.

Concentration limits are placed on the water quality of the effluent. A series of standards that have been developed and that govern the maximum allowable limits for many constituents are shown below in Table 5.5-5. All information related to these levels has been taken from the RWQCB Orders 98-052 and 98-072:

The temperature of the discharge shall not exceed 100° F. Other constituent levels must also be monitored and maintained, depending on the location within the watershed and point of discharge to the Los Angeles River. Each river may have different effluent limits because of upstream and downstream conditions.

The fees associated with this type of discharge are also regulated by the RWQCB. However, this is dependent on the categorization of the effluent upon submittal of a permit application. Based on discussion with the RWQCB, the effluent will most likely be categorized as a Type 1-A or 1-B discharge. The associated annual fees are listed below for these types:

#### ANNUAL FEE SCHEDULE

Categorical Rating	Fee
1-A	\$10,000
1-B	\$ 7,000

**Alternative Wastewater Discharge Methods.** The primary component of the wastewater will consist of blowdown from the cooling towers. Other wastewaters will also be discharged from the site. The only option for industrial wastewater discharge is to the Burbank Western Channel Discharge 001 permitted by NPDES Permit CA0055531. Sanitary wastes must be sent to the sanitary waste line already onsite.

**TABLE 5.5-5**

**ESTIMATED LIQUID PROCESS WASTE VOLUMES  
TO DISCHARGE 001 AND TO LOCAL SEWER**

<b>Waste Stream</b>	<b>Source</b>	<b>Typical Wash Volume<sup>1</sup></b>	<b>Peak Flows</b>
Cooling Tower Blowdown	Cooling tower reclaim water makeup, evaporative cooler blowdown, score regeneration water, boiler blowdown.	4,353,000 gal/day	3,050 gpm
Uncontaminated Precipitation Runoff <sup>3</sup>	Weather	25,000 gal/day	150 gpm
Total to Discharge 001		4,480,000 gal/day	3,100 gpm
Oil/Water Separator Effluent	Plant and equipment drains contaminated precipitation runoff	11,000 gal/day	100 gpm <sup>2</sup>
Sanitary Drains	Domestic wastes	2,000 gal/day	50 gpm
Total to Local Sewer		13,000 gal/day	150 gpm

<sup>1</sup> All numbers are approximate and are based on 65° F annual average ambient temperature and full load operation.

<sup>2</sup> Excluding precipitation runoff.

<sup>3</sup> Only precipitation runoff from areas with potential oil contamination go to the oil/water separator.

### **5.5.2.2 Transmission Line Route**

The electrical interconnection for the project will not require the acquisition of rights-of-way outside the MPP area. Therefore, there will be no water resources impacts related to the construction or operation of transmission lines for the project.

### **5.5.2.3 Pipelines**

No offsite pipelines will be constructed to support the MPP.

**5.5.2.3.1 Fuel Gas Supply Line.** Natural gas will be delivered to the plant site by SoCalGas using the existing lines onsite or adjacent to the site. Therefore, there will be no water resources impacts related to the construction or operation of a fuel gas supply line for the project.

### **5.5.2.3.2 Wastewater Discharge Lines.**

**Sanitary Wastewater.** Construction of the proposed sewer line will be in accordance with the COB requirements. The capacity of the pipeline will be large enough to allow additional

connections for potential future dischargers. The MPP will discharge approximately 2,000 gpd (2.3 acre-feet per year) to the sanitary sewer.

**Process Wastewater.** The final combined process wastewater discharge from the plant will include the following streams: cooling tower blowdown, combustion turbine evaporative cooler blowdown, and steam cycle drains. The combined wastewater is estimated to average 3,100 gpm and will be directed to the NPDES Discharge 001 to the Burbank Western Channel located along the eastern property line. The average wastewater discharge is expected to be approximately 4,400,000 gpd (4,950 acre-feet per year).

#### **5.5.2.4 Water Supply Line**

Anticipated fresh water demand is 6,850 acre-ft/year average annual or 6,100,000 gallons per day. Maximum anticipated usage of potable water is 6,900 acre-feet per year. Anticipated fresh water demand can be supplied via the existing water system on the MPP site. Reclaimed water will be supplied to the generating plant by the COB, the local water purveyor. Anticipated reclaimed water demand is relatively low (1,150 acre-ft/year average annual or 1,000,000 gallons per day). Anticipated reclaimed water demand can be supplied via the existing onsite 24-inch diameter water main. Therefore, there will be no water resources impacts related to the construction or operation of water supply lines for the project.

#### **5.5.2.5 Access Road**

The new facilities will be served by the existing road network. The existing asphalt paved entrance road off of Magnolia Boulevard will be used for access to the new power block and administration building expansion areas. All additional parking areas and miscellaneous access drives will also be asphalt paved.

### **5.5.3 Mitigation Measures**

This section presents Applicant-committed mitigation measures that will be implemented to reduce impacts to water supply, hydrology and water quality in areas affected by the MPP, including the plant site, transmission line, pipelines and access road.

**WTR-1:** Implement design measures to minimize erosion at the site.

**WTR-2:** Perform construction activities at the plant site and construction staging site in accordance with the SWPPP and associated Monitoring Plan, which will be required for the project in accordance with the California NPDES General Permit for Storm Water Discharge

Associated with Construction Activity. The SWPPP will include BMPs to control erosion and sediment (as well as other pollutants) during construction.

**WTR-3:** Conduct operations at the plant site in accordance with the SWPPP and associated Monitoring Plan, which will be required for the project in accordance with the California NPDES General Permit for Storm Water Discharges Associated with Industrial Activities. Implement the BMPs listed in the SWPPP to prevent or control pollutants potentially associated with the operation of the plant.

**WTR-4:** Perform refueling and maintenance of construction equipment only in designated lined and/or bermed areas. Prepare and implement spill contingency plans in areas where they are appropriate.

**WTR-5:** Maximize volumes of reclaimed water used onsite and reduce potable water use to the extent practicable.

#### **5.5.4 LORS Compliance**

Construction and operation of the MPP plant will be conducted in accordance with all applicable LORS and permit conditions pertinent to hydrology and water quality. The applicable LORS for water resources are discussed below and presented in Table 5.5-6.

The MPP will be in compliance with LORS related to surface and ground water resources during construction and operation, principally through the RWQCB permitting process. The LORS so covered include:

- NPDES Permit under the federal Clean Water Act (CWA)
- Spill Prevention Control and Countermeasures (SPCC) Plan and release reporting requirements
- State Water Use Regulations (General and specific to Power Plant Cooling)
- California Water Code § 13550 (California Water Codes, Water Code, 2000) requiring use of reclaimed water, where available.

Compliance with the LORS related to operation of the cooling water system and other discharges from the site will be accomplished by applying for, obtaining coverage under, and complying with additional NPDES permits from the RWQCB. The MPP will also update current SWPPP and SPCC plans.

TABLE 5.5-6

## LORS APPLICABLE TO WATER RESOURCES

LORS	Applicability	Conformance (section)
<b>Federal</b>		
40 CFR Part 423 Effluent Guidelines and Standards for Steam Electric Generating Point Source Category	Prescribe effluent limitation guidelines for cooling tower blowdown and various in-plant waste streams	Existing NPDES Permit (included as Appendix I)
Clean Water Act § 402, 40 CFR Part 122.26	Requires NPDES permits for storm water discharges from MS4s to waters of the United States. Established requirements for storm water discharges under the NPDES program.	Existing LA County MS4 Permit
Clean Water Act § 402, 33 USC § 1342; 40 CFR Parts 122-136.	NPDES permit for construction activities and preparation of a SWPPP and Monitoring Program. Coverage under NPDES General Construction Activity Stormwater Permit needed.	Section 5.5
Clean Water Act § 311; 33 USC § 1321; 40 CFR Parts 110, 112, 116, 117.	Reporting of any prohibited discharge of oil or hazardous substance.	Section 5.5.
<b>State</b>		
California Constitution, Article 10 § 2	Avoid the waste or unreasonable uses of water. Regulates methods of use and methods of diversion of water.	Section 5.5.
California Toxics Rule	Establishes water quality standards for toxics for inland surface waters and enclosed bays and estuaries.	Existing NPDES Permit
State Water Resources Control Board, Resolution 75-58 (June 18, 1975)	Comply with policy on the use and disposal of inland water used for power plant cooling.	Section 5.5.
California Water Code §§ 13271 – 13272; 23 CCR §§ 2250 – 2260.	Reporting of releases of reportable quantities of hazardous substances or sewage and releases of specified quantities of oil or petroleum products.	Section 5.5.
California Water Code § 13263(a)	Requires that waste discharge requirements issued by Regional Boards shall implement any relevant water quality control plans that have been adopted; shall take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose; shall take into consideration other waste discharges; and the need to prevent nuisance.	Section 5.5

**TABLE 5.5-6**  
**(CONTINUED)**

<b>LORS</b>	<b>Applicability</b>	<b>Conformance (section)</b>
Water Quality Control Plan (Basin Plan) for the Los Angeles Region	Specifies the beneficial uses of receiving waters and contains both narrative and numerical water quality objectives for the receiving waters in the County of Los Angeles.	Section 5.5
California Public Resources Code § 25523(a); 20 CCR §§ 1752, 1752.5, 2300 – 2309, and Chapter 2 Subchapter 5, Article 1, Appendix B, Part (1).	Requires information concerning proposed water resources and water quality protection.	Section 5.5.
<b>Local</b>		
Article 10 of Chapter 25, Burbank Municipal Code	Adopts the “Standard Urban Storm Water Mitigation Plan” (SUSMP) issued by the Los Angeles Regional Water Quality Control Board.	Section 5.5

The CEC review of this AFC covers the other applicable LORS, including:

- Information concerning water resources protection in Appendix B under 20 California Code of Regulations (CCR).
- CEQA Guidelines 14 CCR Section 15000, Appendix G.

### 5.5.5 References

California Regional Water Quality Control Board, Los Angeles Region 4, Water Quality Control Plan, Los Angeles Region – Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties. June 13, 1994.

California State Water Resources Control Board Resolution No. 75-58: Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling. June 19, 1975.